G. H. RAISONI COLLEGE OF ENGINEERING

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Literature Review

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Problem Statement: Delivery of Essential Medicines by Drones in Hilly areas.

Throughout the developed and developing world, access to life-saving and critical health products are hampered by what is known as the last-mile problem the inability to deliver needed medicine/blood from a city to rural or remote locations because of inadequate transportation, communication or supply chain infrastructure. To solve this connectivity problem, a national drone delivery system needs to be created to carry urgent medicines to patients in need in Hilly and inaccessible areas. The team needs to build a drone that can deliver essential medical products/blood of up to 2.0 kilograms per flight while maintaining the cold chain if needed - in an average fulfilment time of 30 minutes. Also, it should be usable in emergencies, and disaster-prone areas.

Our drone can provide humanitarian aid and potentially life-saving treatments to areas affected by natural disasters and emergencies, leading to a quicker, more efficient response time. Delivering laboratory samples or blood, as well as unique products brought to remote clinics or hospitals up to the

payload of 2 kilograms Transportation of organs for transplantation in the quickest way possible. The drone will be potential to transport defibrillators to patients in cardiac arrest Delivery time in the case of drones is faster which is essential in emergency delivery Drone Delivery is unaffected by natural calamities like earthquakes or landslides etc. Inexpensive compared to other modes of transportation. Delivery is not confined to specific geographic locations. Due to the lack of infrastructure in hilly remote areas, there is an issue of limited connectivity by road. so most of the transport is done manually. Drones can limit this manual effort. Less Human Intervention in the complete process of delivery. The provisions include medical supplies, antivenom and blood products. Due to the manual mode of transportation in hilly remote areas, there is a potential threat to the lives of transporters. Usage of drones ensures no live threat. For the implementation of an autonomous navigation system for drone collection of data values like altitude, speed, location through GPS need to be collected the mathematical distance and value calculated during the experiment needs to match the actual values for better accuracy of the system network of semi-autonomous systems in a hilly region can dislocate the drone and can lose control over it .Harsh climatic conditions can cause turbulence and drone may lose control Lack of real-world data from autonomous navigation system implementation.Network issue in a hilly area. High winds in hilly areas can cause damage to drones. Maintenance of refuelling for long-distance travel. Integration of hardware and software. Future Scope**:** This software solution can be implemented in hardware Better Software accuracy with more and more data Testing on real-world examples like in a hilly area could help us find more challenges. Planning for building app and website for real-time drone location spotting Scope of complete automation Adding more features in applications. Technology Machine Learning Python Language for model development and Backend development.HTML, CSS, JS , React for Frontend Development. Google Maps API. Specifications**:** The drone can cruise at 101 km/h (63 mph) at an altitude of 80–120 metres (260–390 ft) above ground level, ensuring deliveries are made within 45 minutes. The drone can carry up to 2 kilograms (4 lb) of cargo. At average payload, a drone has a range of 100+ kilometres which is beneficial for long-range medical transport and can be time-saving.